UNIT 1 CATEGORIES OF INFORMATION SOURCES

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1.0 LEARNING OUTCOMES

After reading this Unit, you will be able to:

- explain various types of information sources;
- categorise them based on their publication status, contents, media or format; and
- describe their historical development.

1.1 INTRODUCTION

We all share information by speaking, writing or other methods and use information by reading, listening or watching. The most important form of sharing information is by personal communication, where people make their thoughts and wishes known to one another. People communicate in many ways including by talking, writing letters, making telephone calls and also through Internet and other media. Without personal communication parents would not know what their children need, teachers could not help their students learn, people could not share knowledge. Each person would have to learn everything for herself/himself and in this way human beings probably could not have survived for long. So, humans are an important source of information.

People with some knowledge of any kind make their views, ideas, observations, experimental research results, etc. known to the fellow human beings by writing or other methods of communication. This way information is being generated as well as recorded in variety of sources and formats for public use. The recorded information gets accumulated over a period of time in wide range of sources. We all depend
on these sources for general knowledge and information such as for daily news of interest, study, research, entertainment and even for solving our day-to-day problems. Some of these sources as we know are newspapers, books, magazines, CDs, DVDs, radio, television, Internet, etc. This shows that all of us depend on recorded sources of information as well as on mass media like television and radio for getting information.

We also get information from various institutions. For getting admission we consult educational institutions like a school, college, or a university. Apart from academic institutions, several government organisations, health institutions, R&D organisations, S&T institutions, industries, etc. serve as useful sources of information in their respective areas of activities. Thus, institutions also serve as useful sources of information.

1.2 WHAT ARE INFORMATION SOURCES?

The sources from where we get information are called information sources and these comprise documents, humans, institutions as well as mass media like newspaper, radio and television.

All of us have seen and used many of these sources. In this Unit we shall study these information sources, categorise them based on their type, information contents and physical form. We shall also study the historical development of these sources.

1.3 TYPES OF INFORMATION SOURCES

You have seen in the school library that books are arranged on the shelves according to their class numbers (each subject is given a class number), so that all the books on the same subject can be placed together. Fiction books are arranged alphabetically by the names of the authors, so that all the books by the same author can be placed together for easy browsing. Similarly current issues of the journals and magazines are displayed on the display racks and old issues are shelved behind. Apart from these, there are other sets of books like dictionaries, encyclopaedias, maps, atlases, guidebooks, etc. which are kept on separate shelves. These are called reference books. These books are always available in the library for consultation and are not issued to the library members.

As a library organises its collection for the better use of its material by the users, similarly, information sources are also organised according to their contents, type, media or form to cater to the different needs of the users.

We can group information sources into two broad categories as follows:

i) Documentary Sources

ii) Non-documentary Sources

Documentary Sources

All recorded sources of information irrespective of their contents and forms come under documentary sources. These may be published or unpublished, in print or in electronic form. These may be books, periodicals, magazines, and others.

Documentary sources can further be categorised based on their contents and form (or media).

By Contents

Based on the information contents and organisational level these sources can be grouped into:

i) Primary,
ii) Secondary, and
iii) Tertiary sources of information.

By Form
Based on the physical form the documentary sources can be grouped into:
i) Paper-based documentary sources; and
ii) Documentary sources on other media which cover the following:
   a) Sound or audio recording: Audio cassettes, audio tapes, etc.
   c) Visual Images: Moving: Films, videotapes, video discs; etc.
   d) Artifacts and Realia: Globes, relief models, etc.
   e) Electronic Media: Magnetic tapes, discs, drums, etc.
   f) Optical Media: CD-ROM, DVD, etc.
   g) Microforms; Microfilms, microfiche, etc.

Non-documentary Sources
Non-documentary sources of information are those sources which are not recorded in any form. Under this category come:
i) Humans,
ii) Organisations,
iii) Mass media other than print media, and
iv) Cyber media.

The above categorisation of information sources will be presented by following figure 1.1 also for easy understanding.
In the next two subsections of this Unit, you will be studying in detail about documentary and non-documentary sources of information.

### Points to Remember

* Sources from where we get information are called ‘Information Sources’.
* Information sources are of two types i) Documentary sources and ii) Non-documentary sources.
* All recorded sources of information are documentary sources.
* All un-recorded sources of information are non-documentary sources.
* Based on the information content, a documentary source may be primary, secondary or tertiary.
* Based on the physical format, a documentary source may be either on paper or on other media.

### Self Check Exercise

**Note:**

i) Write your answers in the space given below.

ii) Check your answers with the answers given at the end of this Unit.

1) Fill in the blanks with appropriate words

   a) Sources from where we get information are called ________________.

   b) The most important form of sharing information is by ______________ communication.

   c) All ______________ sources of information are documentary sources.

   d) All ______________ sources of information are non-documentary sources.

### 1.3.1 Documentary Sources of Information

#### By Content

Recorded sources of information do not merely comprise miscellaneous collections of books, periodicals, articles, dictionaries, newspapers, etc. but are organised into quite basic and fundamental categories based on their information contents.

Depending upon their contents and organisational level the documentary sources can be grouped into:

i) Primary,

ii) Secondary, and

iii) Tertiary sources of information.

1) **Primary Sources**

Primary sources are those sources which contain original material that has been published, reported or recorded for the first time and has not been interpreted, commented upon, summarised, translated or evaluated by a secondary party. Primary sources include new raw data, new interpretation of previously known facts or idea, any new observation or experiment, etc. These materials tend to be most timely and
usually take the form of an article in a periodical, a monograph, research report, patent, dissertation, reprint of an article or some other work. By its very nature the primary source of information is widely scattered and it is difficult to locate the information contained in it. Following is the selected list of primary sources of information:

- Primary periodicals
- Newspapers
- Technical Reports
- Dissertations
- Conference Papers
- Patents
- Standards
- Trade and Product Bulletins, etc.

**Primary Periodicals**

A periodical is a publication which is published with definite periodicity (weekly, fortnightly, monthly, quarterly, etc.) under the same title and intended to publish indefinitely. Each issue is dated and consecutively numbered. Primary periodicals mostly publish research articles. Primary periodicals are published by learned societies, universities, government organisations and private or commercial publishers. ‘*Current Science*’ is an example of a primary periodical:

![Fig. 1.2: Current Science (Primary Periodical)](source: www.currentscience.ac.in)

*Current Science* is a primary periodical. Started in 1932, it is published by Current Science Association in collaboration with the Indian Academy of Sciences. It is published fortnightly. The current issue is Volume 103, issue No. 05, dated 10 Sept. 2012. The periodical publishes two volumes in a year and each volume has 12 issues. Issues from 1 to 12 are consecutively numbered. Besides research articles,
Information Sources and Their Use

research communications (short research articles), and review articles, the issue contains research news, views, opinions and letters to the editor. (http://www.ias.ac.in/curr.sci/25nov2010/1318.pdf)

- **Newspapers**

Newspapers are current awareness media, since they publish news of recent happenings on political, social and economic front of a nation, region, and so on. Newspapers are of different kinds. Usually published daily, some of them are local or regional in their orientation and coverage, others are national or international. Some newspapers specialise in economical and financial matters and bring out in depth analysis of trade, banking, commerce, etc. Newspapers bring out feature articles on subjects of current interest; provide weather reports, information on sports and games, stock market, radio and TV programmes, etc. In fact newspapers carry useful information for every one from housewife to top management of companies to planners and policy makers of government departments. Examples of newspaper:

*The Times of India*

*Economic Times*

- **Technical Reports**

Technical reports are research reports which are produced after conducting a research on a well-defined mission mostly in the field of technology. Mission-oriented research is usually sponsored by government organisations, industries or other agencies. In industries R&D activities are carried out to achieve a particular mission such as to develop a better product, or a process. For example, in an automobile industry one of the missions may be to develop a fuel efficient engine. Similarly, many governments sponsor mission-oriented research mainly in the fields of space sciences, nuclear sciences and defence sciences. The researchers who conduct research for sponsoring bodies write research results in the form of technical report and submit to the sponsoring agency. Technical reports are thus primary sources of information.

- **Conference Papers**

Conference is a gathering or a meeting sponsored or organised by a learned body, a government or governments, an industrial organisation, and so on, where information is exchanged or discussed by experts in that subject fields. Every year thousands of conferences are being organised on various subjects, where experts present their papers. In many cases, organisers of the conference publish proceedings which contain the papers presented in the conference along with discussions, minutes of the meeting and resolutions adopted. Conference proceedings contain a number of research papers and are therefore primary sources of information.

- **Dissertations and Thesis**

A dissertation or a theses is a document submitted by a researcher in support of her/his candidature for a degree or professional qualification. In some universities dissertations and theses are seen as the same. In some universities a thesis is submitted at the end of one’s Master’s degree and dissertation at the end of PhD work. Both report original research and are considered primary sources of information.

- **Patents**

A patent is a government grant which gives a person or a company sole rights to make, use or sell a new invention (which may be a product, process or a design)
for a certain number of years. Individuals and companies engaged in R&D activities protect their inventions by patenting them with the government. The government grants the patent and publishes the details of granted patents through an official publication. Information about Indian patents are published in *Gazette of India*, Part 3, and Section 2. Patent documents are primary sources of information.

- **Standards**

Many people use standards and specifications interchangeably, however they do not have precise meanings and it is important to understand the difference. Essentially standards are authoritative having been produced by national or international organisations, such as Bureau of Indian Standards (BIS) or International Organisation for Standardisation (ISO), with the legal power to formulate standards.

Specifications on the other hand have no legal status and may be formulated by any one. Some specifications go on to become standards, but it may take many years. A specification can be considered to be a ‘draft standard’, in that it is a step on the path towards formal standardisation, but can be incomplete and is subject to change during development. For some users of standards, particularly working in the fast-changing technology sectors, it may be more important to agree on a ‘technical specification’ and publish it quickly, before going through various checks and balances needed to win the status of a full international standard. Conformance to a technical specification allows a degree of standardisation in advance of the formal development and formal ratification of a standard.

Standards and specifications are documents that recommend:

i) Minimum level of performance and quality of goods and services; and

ii) Optimal conditions and procedures for operations in science, industry and commerce. This covers production, evaluation, distribution and utilisation of materials, products or services.

Standards are basically of two types:

i) Fundamental standards, and

ii) Technical standards.

Fundamental standards are related to measurement of length, mass, time, temperature, various forms of energy, force, or other forms of quantifiable fundamental entities that are basic to all scientific and technical practices.

Technical standards are related to product, process, material or service. Standards and specification documents are primary sources of information.

- **Trade and Product Bulletins**

Trade and product bulletins are information products brought out by the publishers, manufacturers and distributors of various types of materials, products or services. Trade and product bulletins cover every kind of material, product or service ranging from books, drugs, chemicals, household goods to complex machinery and equipment used in research and industry. The basic purpose of this type of trade literature is to describe various attributes of the product, material or service and promote its sale to the potential customers. Trade and product bulletins are primary sources of information since information reported about specific commercial product is not likely to be published in any other form of literature.
Primary sources are not only widely scattered but are available in such a large number that it is extremely difficult to keep track of all that is published in a single discipline. To solve this problem, this widely scattered information in primary sources is constantly being compressed, organised and rearranged according to some definite plan and communicated through another set of publications called secondary sources of information.

**Points to Remember**

* Documentary sources can be grouped into primary, secondary and tertiary sources of information based on their information contents and organisational level.

* A primary source is that source which contains original material, and has been published, reported or recorded for the first time and has not been interpreted, commented upon, summarised, translated or evaluated by a secondary party.

* A primary source includes new raw data, new observation or experiment, new interpretation of previously known fact or idea.

* Primary sources are not only widely scattered but are available in different types of publications.

* Secondary sources of information are based on primary sources of information. They usually present the contents of primary documents in condensed form and list them in a helpful way for easy and quick retrieval.

**Self Check Exercises**

**Note:**

i) Write your answers in the space given below.

ii) Check your answers with the answers given at the end of this Unit.

2) Mark the following statements as True or False

a) Dissertations and theses are secondary sources of information. (T/F)

b) Primary sources of information are first in the order of appearance. (T/F)

c) Trade and product bulletins are published by government bodies. (T/F)

d) Primary sources are widely scattered. (T/F)

3) Fill in the blanks with appropriate words

a) Standards are of two types, ____________ standards and ____________ standards.

b) Information about Indian patents are published in ________________.

c) Organisers of conferences usually publish ________________.

d) Technical reports are ________________ sources of information.

**Activity I**

Go to a library. Select a primary periodical. Write down its title, year of publication, volume number, issue number and publication frequency. Find out the name of the publisher and list the content of the periodical from the contents page.

**2) Secondary Sources**

Secondary sources of information are mostly dependent upon primary sources of information for their existence. They usually present the contents of primary documents in condensed form or list them in a helpful way so that existence of primary documents are known and access to them is made easy. Based on the reorganisation of information in these sources, the secondary sources can be grouped under four broad types:
The word ‘index’ is derived from the Latin word ‘indicare’, which means to ‘point out’ or ‘to show’. Index type of secondary sources scan the primary sources select the relevant items and arrange them in helpful sequence for easy and quick retrieval. Under this category come indexes, bibliographies, indexing and abstracting periodicals. These are secondary publications which list and arrange the relevant items from the primary documents for easy and quick access. For instance indexing and abstracting periodicals systematically scan the current primary sources of information (like primary periodicals, research reports, conference proceedings, etc.) on a particular subject field, select the relevant items, index (or provide brief summary of) each item, and arrange it in a helpful sequence so that each item can be easily located and identified. In indexing periodicals, each item selected is arranged under broad subject headings along with full details of primary document from which it is selected. Abstracting periodicals provide summary (called abstract) of each item selected for coverage. This helps the user to decide, whether to go for original document or not. Indexing and abstracting periodicals come out at regular intervals and keep users abreast of the current literature on a subject and serve as important guides to the primary literature. Without them a large part of primary literature may remain unknown and unused.

These publications survey the selected portion of primary literature and provide an overview of the subject, and also highlight significant literature on the subject, depict
the progress of a particular field of study, or present the contents of primary literature on a subject in easy and understandable form keeping in view the particular group of users. Publications like annual reviews, advances, treatises, monographs, textbooks etc. come under this category of secondary sources.

iii) Reference Books

Sources like dictionaries, encyclopaedias, directories, yearbooks, almanacs, maps, atlases, etc. come under the category of reference sources. These sources are used for finding out quick facts on a special or general subject. These sources often have the subject heading in alphabetical order for finding the information quickly. These books are used for consultation, and are not available for loan from a library.

iv) Translations

Whenever a primary source is translated into another language for the benefit of the users who are not familiar with the language of the original source, the translation becomes a secondary source. Some primary research periodicals in Russian, Chinese, and Japanese languages are translated into English cover-to-cover for English speaking users.

You will study in detail about these sources in Unit 2 of this course.

3) Tertiary Sources

Tertiary sources are based on primary and secondary sources of information and serve as key to the primary and secondary sources. Tertiary sources are usually compilation from primary or secondary sources and help the searcher to select right primary or secondary source which will be most relevant for her/his purpose. These publications do not carry subject information but guide the users to the source where information on that subject will be available. Under tertiary sources of information come publications like ‘guide to the literature’, ‘guides to the reference sources’, bibliography of bibliographies etc. Tertiary sources will be dealt in detail in Unit 2 of this course.

Points to Remember

* Secondary sources of information are based on primary sources;
* Secondary sources present the contents of primary sources in condensed form or list them in a helpful way so that the existence of primary documents are known and access to them is made easy;
* Secondary sources can be grouped under four broad types viz. i) indexing and abstracting type, ii) survey type, iii) reference books, and iv) translations;
* Tertiary sources of information are based on primary and secondary sources and provide key to the primary and secondary sources.

Self Check Exercises

Note: i) Write your answers in the space given below.
   ii) Check your answers with the answers given at the end of this Unit.

4) Fill in the blanks with appropriate words from the list:
   a) Standards are ______________ sources. (primary, secondary, tertiary)
b) Bibliography of bibliographies is a ___________ source. (primary, secondary, tertiary)

c) Encyclopaedia Americana is a ___________ source. (primary, secondary, tertiary)

d) Textbooks are ______________ sources. (primary, secondary, tertiary)

5) Match Column A with Column B

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Textbooks and annual reports</td>
<td>i) is a tertiary source of information</td>
</tr>
<tr>
<td>b) Encyclopaedia Britannica</td>
<td>ii) is an index type of secondary source</td>
</tr>
<tr>
<td>c) Indian Science Abstracts</td>
<td>iii) is a reference source</td>
</tr>
<tr>
<td>d) Bibliography of bibliographies</td>
<td>iv) are survey type of publication</td>
</tr>
</tbody>
</table>

By Form

Based on their physical form documentary sources can be broadly grouped into:

i) Paper-based Documentary Sources

ii) Documentary Sources in other Media

i) Paper-based Documentary Sources

Paper-based documentary sources include published as well as unpublished sources. Published sources are those sources which are printed in large number of copies by publishers. These sources are usually priced and meant for public use.

Unpublished sources are not printed. Only a few copies are produced which are meant for restricted circulation. Examples of unpublished sources of information are theses and dissertations, technical reports, manuscripts, etc.

ii) Documentary Sources in other Media

As we are aware documentary sources are available in a wide range of formats, which may be audio, audio-visual, electronic, optical or microforms. We can categorise these into the following types:-

a) Sound or Audio Recording: Audio cassettes, audio tapes, etc.

b) Visual Images – Still: Slides; filmstrips; transparencies; photographs.

c) Visual Images – Moving: Films; videotapes; video discs, etc.

d) Artifacts and Realia: Globes; relief models, etc.

e) Electronic Media: Magnetic tapes, discs, drums, etc.

f) Optical Media: CD-ROM, DVD, etc.

g) Microforms: Microfilms, microfiche, etc.

Information sources in different formats serve different purposes. Some of them are used as supporting tools for teaching and learning, some for archival purposes and others are used as storage devices. Different audio-visual aids, through which one can hear as well as see, enhance learning process. It has been observed that on average you can retain 10% of what you read, 30% of what hear and 50% of what
you hear as well as see and 90% of what you do. (Thompson Anthony H, 1983). Visual aids such as slides, transparencies, photographs, etc. are very effective in conveying information and message particularly to people who cannot read. Moving visual images like films, video tapes, video discs, etc. are more effective in information transfer than the still images like photographs, transparencies, slides, etc. CD-ROM (Compact Disc Read Only Memory) and DVD (Digital Versatile Disc) are good storage as well as learning devices. One CD-ROM (12 cm in diameter) can store as many as 3,25,000 pages of information. You will learn more about these sources in subsequent sections. Microforms contain reduced images of books, maps, charts or photographs. Depending upon the microfilm camera, the image can be reduced from 10 times to 210 times. Microforms presently are used for preservation of information contained in old and rare documents. For reading what is stored in microforms, you need a microfilm reader printer, which enlarges the image so that it can be read by the naked eye and printed if desired.

a) **Sound or Audio Recording**

All of us are familiar with audio cassettes and audio tapes that we use at home for listening to music. Now to enhance learning many publishers are offering their books in print as well as in other media such as on CD, MP3-CD, and cassettes. Following are some examples of audio books with accompanied cassettes:

![Audio Books with Cassettes](source: www.amazon.com)

b) **Artifacts and Realia**

Artifacts are handcrafted objects made by human skill or works that are historically and archaeologically interesting, for example a tool and by a cave man, cave painting etc. Realia is a term used in library science and education to refer to certain real life objects. In education, realia are actual objects such as types of woods or fabrics used as tools in teaching. In library classification system, realia are objects such as coins, tools and textiles that do not easily fit into orderly category of printed material.
c) **Electronic Media**

Electronic media are media that require electronics or electromechanical energy to access the content by the end-user. The primary electronic media sources cover video recordings, audio recordings, multimedia presentations, CD-ROM, and online presentations. Although the term is usually associated with content recorded on storage medium, recordings are not required for some electronic media like live broadcasting and online networking. Any equipment used in electronic communication process (such as television, radio, telephone, desktop computer, video games, console, and handheld devices) also comes under electronic media. Electronic media may be either in digital or analog format. Digital data is stored on both, magnetic storage devices and optical storage devices.

d) **Magnetic Storage Media**

Magnetic storage devices store data on a surface coated with a magnetic substance. This covers analog as well as digital magnetic storage media. Analog magnetic media include audio and video recordings which contain reel-to-reel tapes, audio cassette tapes and video tapes which magnetically store sound and pictures. Magnetic tapes can also be used to store data in digital format that is in binary code, where only two magnetic states are needed. The polarity of the particles on the tape or disc determines if the value is zero or one. Three common types of magnetic storage devices are tapes, discs and hard drives. Tapes were the first type of magnetic storage media. It is either reel-to-reel or in cartridge form. Tapes are inexpensive type of magnetic storage but they are slow. You must either rewind or advance the tape to access the required data. Tapes now have limited role because magnetic discs has proved to be superior storage devices. Further disc data can be accessed directly as opposed to data on tape, which can be accessed only sequentially. Discs like floppy discs transfer small amount of data either between computers or to backup discs. Nearly all computers used to have floppy drive, but they have since been replaced by CDs or DVDs. Hard drives can store vast amount of data and are called random access device, which means you do not have to search through hard drive to find data before retrieving it.
e) **Optical Storage Media**

Optical media are storage media that hold the content in digital form and the content are written and read by LASER. These media include CD-ROM (Compact Disc Read Only Memory), DVD (Digital Versatile Disc)) and all variations of the two formats such as CD-R, CD-RW, DVD-R, DVD-RW, etc. A DVD has more data storage capacity than a CD and has better sound and picture quality. A CD has storage capacity of about 700 megabytes (MB) whereas a DVD can store about 4.5 gigabytes (GB) of data. CD-R and DVD-R record data only once and then data become permanent on the disc. Whereas CD-RW and DVD-RW are re-recordable formats. The data on these discs can be erased and recorded over numerous times without damaging the disc.

![Fig. 1.6: CD-ROM](source: www.shwetankeducation.com)

![Fig. 1.7: A DVD and DVD Player](source: www.blackmoreit.com)
f) Microforms

Microforms contain reduced images of books, newspapers, maps, photographs etc. for storage and preservation purposes. In microforms the text or images of the documents are photographically reduced. When it is in the form of roll film (similar to the film in ordinary camera) it is called microfilm. When it is in the form of a flat card size sheet (4x6 inches) it is called microfiche. Because these images are reduced in size microform can store large amount of information in a small place. The process of making microfilm copies is called microphotography. The material recorded on the microfilm can be read by using microfilm reader. This machine enlarges the image on the film and projects them onto a built-in screen. Some microfilm readers, called reader printers, can also produce a paper copy of the enlarged image. In libraries very old, valuable and fragile documents are often microfilmed to provide public access to these documents without any risk to the originals.

Source: www.scansolutions.co.uk

Fig. 1.8: Microfiche

Source: www.scansolutions.co.uk

Fig. 1.9: A Roll of Microfilm and Microfiche

Source: www.access-system.ca
**Points to Remember**

* Based on their physical forms, documentary sources are either on paper based media or in other media.

* Paper-based documentary sources include published as well as unpublished sources.

* Published sources are printed in large number of copies by the publishers and are often priced.

* Unpublished sources are generally not printed and only a few copies are produced for restricted circulation.

* Documentary sources are also available on wide range of media like photographic, electronic, magnetic and optical.

* Manmade objects like globe, relief models, etc. also act as useful sources of information.

* In microforms the text or image of the documents are photographically reduced. Microforms are in the form of roll film or microfiche.

* Microforms are used for storage and archiving of documents.

**Self Check Exercise**

**Note:**

i) Write your answers in the space given below.

ii) Check your answers with the answers given at the end of this Unit.

6) Fill in the blanks with appropriate words

a) Based on the physical form, documentary sources are either paper or in ____________________.

b) In ________________ media the content are written and read by LASER.

c) Three common type of magnetic storage devices are ________________ and ________________.

d) In ________________ the text and images of the documents are photographically reduced.

**Activity II**

Go to a public library. Search for, a primary, a secondary and a tertiary source of information. Write down the title of each source.

Ask the librarian how they are arranging their CDs, DVDs, audiotape and videotape collection. Write down the details of the same in your note book.

1.3.2 **Non-documentary Sources**

Non-documentary sources of information are those sources which are not recorded in any form. Under this category come:

i) Humans,

ii) Organisations,
Humans serve as useful sources of information for such information as has not been recorded in any form. Humans, ranging from experts to common man act as important sources of information depending upon the nature of information required. For instance, in case of an accident, the people who are present at the accident site can serve as useful witnesses. Similarly, an expert’s opinion is very valuable. When a researcher encounters some problem while carrying out research and a solution is immediately required, an expert may be of great help.

Organisations

Similarly, organisations are also important sources of information. Organisations like libraries and information centre, academic institutions, R&D institutions, museums, archives, publishing houses, government establishments, etc. provide authentic, reliable and timely information in their specific areas of activity. Such information at times is not available elsewhere.

Mass Media

The medium by which news, information, etc. is communicated to general masses i.e. the public, is called mass media. Mass media include press (newspapers, magazines, etc.), radio and television. Of these, radio and television have been found most effective. The main advantage of a television is that it brings sight, sound and action directly to users in their homes. The advantage of a radio is that people can listen to radio programmes while traveling or doing other things like driving a car or working at home. Radio stations located at various regions in the country broadcast news (local, regional, national and international), entertainment, musical, sports and educational programmes of various kinds. Radio stations broadcast suitable programmes for all groups of people including men, women, children, farmers, professionals, handicapped and others. Similarly the television is the most popular mass medium offering a range of programmes through hundreds of channels. You must have noticed there are special television channels devoted exclusively to telecast news, movies, music, sports and games, religious discourses, tourism and travel, fashions and styles, wildlife, history, science and technology. There are also television channels exclusively devoted to telecast children’s programmes, cartoon network, active learning, active cooking and live educational programmes for students. There is a tough competition among various television agencies. Almost all events of public interest are televised live on these channels to attract viewers. To encourage viewers to participate, reality shows on these channels are also on the rise. Some of these reality shows encourage the participants to display their talents. Television shows like ‘Kaun Banega Crore Pati’, Sa Re Gama Pa, ‘Jhalak Dikhla Ja’, Indian Idol, etc. are some of the examples of reality shows.

Cyber Media

Cyber media is another very important source of information. Media published on the Internet or in cyberspace is called cyber media. This is interactive digital media like Internet and is different from the traditional media such as print and television. Cyberspace is the electronic medium of computer networks, in which online communication takes place. The term cyberspace (from cybernetics and space) was
first coined by science fiction novelist William Gibson, in his 1982 story “Burning Chrome” and popularised by his 1984 novel “Neuromancer”. During 1990s, people, especially academic community, started using the term ‘cyberspace’ for Internet and then for the World Wide Web. Now the term has become a conventional means to describe anything associated with computers, information technology, the Internet and diverse internet culture. On this media individuals can interact, exchange ideas, share information, provide social support, conduct business, create artistic media, play games, and engage in discussions and other things. Internet allows millions of people, all over the world to communicate and share information.

(http://www.en.wikipedia.org/wiki/Cyberspace)

**Points to Remember**

* Non-documentary sources of information are those sources which are not recorded in any form;

* Non-documentary sources comprise humans, organisations, mass media (like television and radio); and cyber media.

**Self Check Exercise**

Note:

i) Write your answers in the space given below.

ii) Check your answers with the answer given at the end of this Unit.

7) Fill in the blanks with appropriate words

a) Humans are useful source for ______________ information.

b) Organisations provide ____________, _____________, and __________ information in their respective areas of activity.

c) Advantage of radio over ______________ is that people can listen to it while driving a car or doing other things at home.

d) ______________ is the most popular mass medium.

**1.4 HISTORY OF THE DEVELOPMENT OF INFORMATION SOURCES**

You have learnt in the foregoing sections about different sources of information and how to categorise them. The description of information sources is not complete until we study how these sources have developed over a period of time. In this section we shall provide you a bird’s eye view of the history of development of these sources.

We have seen that people with some knowledge of any kind make their views, ideas, observations, experimental research results etc. known to the fellow human beings by writing or by other means of communication. This practice has been followed since time immemorial. Early people probably communicated with one another by sounds and gestures long before they developed actual words. No one knows how human speech developed. Experts who study language and prehistoric ways of life have made number of guesses. Many of these scholars think language began as an imitation of sounds in nature, such as barking of certain animals, howling of wind, and sound of streams or waterfalls.

After language developed, people exchanged news mainly by word of mouth. Runners
carried messages over long distances. Peoples also used drumbeats, fires and smoke signals to warn against forthcoming calamity or danger from wild animals. Paintings and drawings were the first steps towards a written language. People painted or carved on cave walls or stones series of pictures to tell a story of successful hunting trip or a violent storm. Gradually, people developed a system of small pictures to represent most common objects and ideas. This type of writing is known as ‘pictographic writing’. Middle Eastern people called Sumerians developed the first pictographic writing in about 3500 B.C. (The World Book Encyclopaedia).

Pictographic writing worked well for familiar things, but people faced difficulty in writing new or unusual words. Gradually, they learnt to make each symbol represent a sound instead of an object or idea. As a result, they could write any word in the spoken language. With the development of written language people could exchange written messages over long distances without depending on the memory of messengers. Written messages could also be stored for later use. With the invention of writing, prehistoric time ended and the period of written history began.

As the time progressed, the medium and method of recording information changed. Recording medium changed from cave walls or stones to clay tablets, metals (lead, copper, brass and bronze), linen, wooden boards, wax coated wooden tablets, papyrus, parchment and vellum till the invention of paper. People in India used palm leaves, the ancient Hindu religious writings called the Vedas were originally written on palm leaves.

Invention of paper in 105 A.D. by the Chinese is a landmark in the history of writing media. The Chinese art of papermaking gradually spread to other parts of the world. People stated using paper for writing. Earlier books were written by hand by professional writers called scribes. Most books written with hand during that period (400 A.D. – 1400 A.D.) were decorated with beautiful, colourful designs and pictures drawn on each paper. Painters frequently painted the design in colours, even in gold. Leather bindings decorated with gold, silver and precious stones indicated the value and importance of books. Because of the high cost and time involved in making these books, the books were not available for public use. Only a few privileged one like religious leaders or rulers belonging to royal families, etc. had access to these books.

1.4.1 Development of Printed Books and Other Sources

The Chinese made the first known printed book called Diamond Sutra in 868 A.D. They printed each page from a carved block of wood. Ink was spread over the raised surfaces on the block and the inked images were printed on paper. This type of printing was known as block printing. The book as we know today resulted from the invention of printing with movable types. In movable type printing, each letter of the alphabet is made out of a separate piece of metal. Printers arrange the metal types in any combination to produce the text they want. They can also reuse the type. This method allowed printers to produce many different pages in shorter time than with any previous method of printing. The Chinese invented movable types in 1000’s and Koreans began using it in 1300’s. Europeans developed movable type independently in mid -1400’s. There Johannes Gutenberg and his associates worked to develop the printing process using movable types. The first book printed in Europe using movable type appeared in Mainz, Germany during 1453 to 1456 A.D. One of the first books printed was a Bible in Latin. This Bible became to be known as Gutenberg Bible. With the invention of printing press, it became possible to print books quickly and in large number. The books were available to masses. Printing quickly became the most important means of mass communication. This breakthrough
also paved way for education of masses. A number of academic institutions and libraries came up in 1600 A.D to support education particularly in European countries. Printed books also brought many changes in libraries. Books gradually replaced handwritten manuscripts. The books were put on open shelves, not in chest, as the manuscripts had been. By 1600, libraries had started to look like present day libraries. Shelves of books lined the walls and tables for readers stood in the middle of the room. During 1600 the art of printing was also used in business. Printed newssheets appeared in the Netherlands and other trading nations, which reported mostly business news like which ships had landed and what goods they carried. The newssheets also printed advertisements. These newssheets soon added non-business news and became the first true news papers.

**1.4.2 Emergence of Periodicals**

In this period the scholars and scientists who carried out research, published their findings in the form of books. This medium they found was unable to disseminate research results quickly. Since, each scientist had to work for years to collect enough findings, so that it can be published in the form of a book. The only other way they communicated with their fellow scientists about their research was, by writing letters to them or by meeting them in conferences. This was informal communication. They needed a formal and quicker medium to disseminate their research results to avoid duplication of research effort and establish priority in announcing their invention. This led to the publication of periodicals. The first periodical was *Le Journal des scavans* (Journal of Learned Men). The first weekly issue of this periodical was published in Jan, 1665. It was in French language and contained articles, letters and notes. In the same year Royal Society of London published a monthly scientific periodical called *Philosophical Transactions*. The first issue was published in March, 1665. It contained articles and listed important philosophical books. These two journals served as models for subsequent scientific periodicals founded by learned societies and academic institutions.

**1.4.3 Emergence of Electronic Sources**

In late 1800’s, a number of inventions like typewriter, telegraph, telephone helped quicker dissemination of information. The telephones and telegraphs could send long distance messages instantaneously through electric wires. Even electric cables were laid in Atlantic Ocean to send telegraphic messages from United States to England and other European countries.

In 1895, inventors used a branch of science and engineering called electronics to send signals through space. In electronics electromagnetic waves are used to carry signals, which travel through the space at the speed of light. Electronics made possible the invention of radio, television, computers and other wonders of modern communication.

**1.4.4 Emergence of Mass Media**

Mass medium (plural mass media) is any form of communication such as the press, television, radio, and motion pictures, which reaches a large number of people. Appearance of newssheets in trading nations during 1600 and their subsequent development to newspapers was the first step towards development of mass media. An important advance in printing came in 1811, when German printer named Freidrich Koenig used steam engine to power the printing press. This invention allowed newspapers to print large number of copies cheaply making mass circulation of newspapers possible. *The Times* newspaper of London was the first to use Koenig’s
press in 1814. Practical applications of electronics led to the invention of radio in 1906 and television in 1936. At present, radio, television and films are most powerful mass media in India.

1.4.5 Emergence of Internet and World Wide Web

Advances in computers and telecommunication technologies in 20th century led to the emergence of electronic sources of information, digital or electronic libraries, Internet and the World Wide Web.

Internet is a global system of interconnected computer networks that serves billions of users worldwide. The origin of Internet dates back to 1960, when United States Department of Defense initiated a project to build a computer network, ARPANET (Advanced Research Project Agency Network) that could maintain itself in adverse condition. The project was started in 1968 and soon evolved into a goal of developing techniques to build a large scale network. At first the goal of ARPANET researchers was to develop one large network to connect computers over long distances. However, by mid 1970s, it became clear that no single network was going to be able to serve everyone’s needs. The researchers saw it would be more useful to develop a technology that would connect various types of networks into a single large system. This led to the concept of an ‘inter-network’ or ‘Internet’. By early 1970s, computer power, speed and memory increased and so did the ability to communicate with remote computers over the existing telephone lines on the Internet. At that time dial-up online searches on the Internet were very expensive. Usage of Internet was limited till the advent of World Wide Web or Web in 1990s. The emergence of World Wide Web and coming up of a large number of Internet service providers, offering Internet services to masses resulted in phenomenal increase in Internet usage in the world. Thus, today’s Internet is not really a single large computer network; it actually is a collection of tens of thousands of networks spanning the globe. The Internet allows millions of people, all over the world, to communicate and share information. You communicate by sending or receiving electronic mail, or by establishing connection to someone else’s computer and typing messages back and forth. You share by participating in discussion groups and by using many programmes and information sources that are available free on the Internet. World Wide Web is the dominant technology on the Internet. The World Wide Web began in 1989 as a project by high-energy physics researchers in Switzerland to distribute research results on the Internet to fellow physicists. Since then, the Web has rapidly moved into the forefront of Internet technologies. You now see hundreds and thousands of websites on the Internet.

The websites have web pages which have linkages as well as multimedia features.

**Points to Remember**

* History of information sources shows that before language developed people communicated with each others by sound and gestures.

* After language developed people exchanged news by words of mouth.

* Paintings and drawings on the stones and cave walls were the first step towards written language. This type of writing was known as ‘pictographic writing’.

* Later recording media changed from stones and cave walls to clay tablets, metals, linen, wooden boards, wax coated wooden tablets, papyrus, parchment, vellum and palm leaves.
Information Sources and Their Use

* Paper was invented in 105 A.D. by a Chinese and this became dominant recording media.

* Most books were written on paper by hand till mid 1400 A.D.

* Because of the high cost and time involved in copying books, the books were not available to common people.


* In Europe, Johannes Gutenberg developed movable type printing press around 1450.

* Invention of the printing press became a landmark in the history of printed books, as it became possible to print books quickly and in large number.

* The books became available to masses and this paved the way for education of masses.

* Need for quicker dissemination of research results led to the emergence of periodicals in 1665.

* In 1800s a number of inventions like typewriter, telegraph, telephone helped quicker dissemination of information.

* In 1895 inventers used a branch of science and engineering called ‘electronics’ to send signals through space. The electronics made possible the invention of radio, television, computers and other modern wonders of communication.

* Advances in computers and telecommunication technologies in mid 20th century led to the emergence of electronic sources of information, Internet and World Wide Web.

Self Check Exercise

Note:  

i) Write your answers in the space given below.

ii) Check your answer with the answers given at the end of this Unit.

8) Match Column A with Column B

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) The first printed book by the Chinese was</td>
<td>i) published by the Royal Society of London</td>
</tr>
<tr>
<td>b) German Printer Friedrich Koenig</td>
<td>ii) led to the invention of radio and television</td>
</tr>
<tr>
<td>c) Johannes Gutenberg</td>
<td>iii) used a steam engine to power a printing press</td>
</tr>
<tr>
<td>d) Philosophical Transactions was</td>
<td>iv) led to the emergence of electronic sources of information</td>
</tr>
<tr>
<td>e) Practical applications of electronics</td>
<td>v) invented movable type printing press</td>
</tr>
<tr>
<td>f) Advances in computers and ICT</td>
<td>vi) ‘Diamond Sutra’</td>
</tr>
</tbody>
</table>
1.5 SUMMARY

The Unit deals with various types of information sources and how to categorise them based on their information contents and physical form. Sources have been broadly categorised into documentary and non-documentary sources. Under non-documentary sources, humans, organisations, mass media (other than print media) and cyber media have been covered. Documentary sources have been further divided based on their information contents and physical form. Based on the information contents, the documentary sources are further categorised as primary, secondary and tertiary sources. Under primary sources primary periodicals, newspapers, technical reports, dissertations, conference papers, patents, standards, and trade and product bulletins have been covered. Under secondary sources indexes, bibliographies, indexing and abstracting periodicals, reference books, reviews, textbooks, treatises, technical translations have been covered. Under tertiary sources guides to the reference sources, bibliography of bibliographies has been covered. Based on the physical format, documentary sources can be either paper-based or in other media. Documentary sources on non-print media include sources on audio-visual media, electronic media, optical media and microforms. In the end a brief history of development of various information sources have been dealt with.

1.6 ANSWERS TO SELF CHECK EXERCISES

1) a) information sources  b) personal  c) recorded  d) unrecorded
2) a) F  b) T  c) F  d) T
3) a) fundamental; technical  b) Gazette of India Part 3 Section 2.
   c) conference proceedings  d) primary
4) a) primary  b) tertiary  c) secondary  d) secondary
5) a) iv  b) iii  c) ii  d) i
6) a) paper based; other media  b) optical  c) tapes, disks and hard drives  d) microforms
7) a) latest  b) authentic, reliable and timely  c) television  d) television
8) a) vi  b) iii  c) v  d) i  e) ii  f) iv
1.7 KEYWORDS

Access : To retrieve data from computer.

CD-R : Compact disc recordable data can be recorded once only but can be read multiple times.

CD-RW : Compact disc rewritable data can be recorded and erased multiple times.

DVD-R : Digital versatile disc recordable data can be recorded once only and can be read multiple times.

DVD-WR : Digital versatile disc rewritable- data can be recorded and erased multiple times.

Index : List of names, subjects, topics, etc. arranged alphabetically with indication to exact location.

LASER : Light amplification by simulated emission of radiation.

Multimedia : The use of different media to convey information. In multimedia text together with audio, graphics, animation and video is packaged on CD-ROM with links to Internet.

1.8 REFERENCES AND FURTHER READING


